

APPLICATION FOR A UNITED STATES PATENT

UNITED STATES PATENT AND TRADEMARK OFFICE
(MBHB Case No. 01-1013; 3Com Case No. 3773.CS.US.P)

5 Title: **System and Method for Sidebar Functionality In a Regular
Conference System**

10 Inventors: Guanglu Wang, a citizen of the People's Republic of China and a
resident of Buffalo Grove, IL; and

Michael Homeier, a citizen of United States and a resident of
Elmhurst, IL.

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20 Assignee: 3Com Corporation
5400 Bayfront Plaza
Santa Clara, CA 95052

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FIELD OF THE INVENTION

This present invention relates to conference systems. More specifically, it relates system and methods for providing sidebar conferences.

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BACKGROUND OF THE INVENTION

Conferencing systems allow users to conduct multimedia conferences from multiple locations. A conference may allow users located in one or more cities to meet as if all the users were in the same physical location. The conference may be a video/audio conference or any form of multimedia conference.

Conferencing systems may offer a number of features for the benefit of users. For example, muting may be used to allow some of the participants to engage in other activities during the conference. In another example, record and rewind features may allow the conference to be recorded and may allow a recorded conference to be replayed for conference participants and others.

Each of the users of a conference may produce an audio stream. The audio stream may include the audible comments of the user. A sidebar feature may be used that allows two or more parties within an ongoing conference to create a separate media path that their audio streams are only available to themselves, but not the rest of the conference members. In this situation, the audio stream of the ongoing conference may be still audible to the sidebar members. The sidebar feature may be used for inter-party comments, explanations, and secrets during the conference so as not to disturb the rest of the conference parties.

Various protocols may be used to allow a conference to be set-up and conducted. For example, the Session Description Protocol (SDP) may be used to communicate information between servers and users in order to set-up a conference. The SDP specifies the format of messages allowing the set-up of the conference.

5 One example of the SDP is described in RFC 2327 promulgated by the Internet Engineering Task Force (IETF).

SUMMARY OF THE INVENTION

The method and system of the present invention advantageously allows a group of users conducting an on-going conference to hold a sidebar conference. Specifically, a temporary conference may be established that includes the audio stream of the conference and the audio streams of each of the selected group of users. The audio streams of each of the selected group of users are only audible to the selected group of users of the sidebar conference and not other original conference participants.

In one example of the present invention, a first user and a second user may have audio streams. An on-going conference, which includes the first user and the second user, may also have an audio stream. A temporary conference may be created. The audio stream of the on-going conference may be directed to the sidebar conference. The audio stream of the first user may be directed to the temporary conference and the audio stream of the second user may be directed to the temporary conference. The audio stream of first user and the audio stream of the second user may be only audible to the first user and the second user.

In another example of the present invention, a system for conducting a sidebar conference within an on-going conference includes a network, a first user, a second user, a conference server, and an interactive voice recognition (IVR) server. The on-going conference, the first user and the second user have audio streams.

The IVR server may receive commands from the first user causing the IVR server to prompt the conference server to establish a temporary conference. The

conference server may maintains the conference and establishes the temporary conference at the request of the IVR server. The temporary conference may include only the first and second user, the temporary conference including the audio stream of the conference and the audio stream of the first user and the audio stream of the second user.

The foregoing and other features and advantages of the system and method for conferencing will be apparent from the following more particular description of preferred embodiments of the system and method as illustrated in the accompanying drawings in which like reference characters refer to the same parts throughout the different views.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the present inventions are described with reference to the following drawings, wherein:

Figure 1 is a diagram illustrating a preferred embodiment of the system for
5 sidebar conferencing in accordance with the present invention;

Figure 2 is a flowchart illustrating one example of sidebar conferencing in accordance with a preferred embodiment of the present invention;

Figure 3 is a call flow diagram illustrating sidebar conferencing in accordance with a preferred embodiment of the present invention; and

10 Figure 4 is a call flow diagram illustrating the initiation of a sidebar conference in accordance with a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to Figure 1, an example of a system for sidebar conferencing is described. The system includes a first user equipment 102, a second user equipment 104, a conference server 106, a network 108, an interactive voice recognition (IVR) server 110, and a data system 112.

The first user equipment 102, conference server 106, second user equipment 104, and IVR server 110 are coupled to the network 108. The IVR server 110 is coupled to a data system 112.

The first user equipment 102 and second user equipment 104 may be any type of equipment that can transmit any type of information to a network and receive any type of information from a network. For example, the first user equipment 102 and second user equipment 104 may be personal computers or personal digital assistants. Other examples of user equipment are possible. The user equipments 102 and 104 may include the functionality to interface with any type of network or networks. In addition, the user equipments 102 and 104 may be assigned an address.

The network 108 may be any type of network or any combination of networks. For example, the network 108 may be any combination of wireless, IP, or telephone network. The network 108 may route information between the different entities coupled to the network 108. For example, the network 108 may route information between the first user equipment 102 and the second user equipment 104.

The functions of the conference server 106 may be implemented using computer instructions stored in a memory and executed by a processor. For example, the conference server 106 may create and maintain multiple conference sessions, mix

multiple audio streams for each conference, and dispatch mixed audio stream to each conference user. Other functions are possible.

The functions of the IVR server 110 may be implemented using computer instructions stored in memory and executed by a processor. For example, the IVR server 110 may obtain user passwords, obtain other identification from users, store voice greetings, and process commands from the users.

The IVR server 110 may also provide a menu to the user. The menu may allow the user to indicate parties that the user desires to conduct a sidebar conference. The user may select the other users from a list, type in the other users, or speak the name of the other users. Other examples of data entry techniques are also possible. The IVR server 110 may then decode the commands, determine the other users, query the other users, receive replies concerning the query from the other users, and determine from these replies whether the other users desire to enter the sidebar conference. It will also be understood that the above-mentioned functions may be moved to any other entity in the system. In other words, sidebar functionality mentioned in conjunction with the IVR server 110 are in no way limited into being present only on the IVR server 110.

The data system 112 may be any type of system that provides data processing capabilities. For example, the data system 112 may be a bank accounting system or brokerage accounting system. Other examples are possible. The data system may process commands received from the IVR server 110. The commands may be received in any format.

Referring now to Figure 2, one example of the operation of the sidebar conferencing for two participants is described.

At step 202, selected users decide they want to hold a sidebar conference during an on-going conference. A user may enter a command or perform some action that requests that the system to conduct a sidebar conference. In one example, a menu may be presented to a first user and the first user may select a second user to be in a sidebar conference from the menu. The system may then query the second user and determine that the second user desires to join the sidebar conference. Inviting more users into the sidebar conference is also possible.

At step 204, a new temporary conference may be created. The conference may be created by assigning a new conference identifier to the temporary conference and conducting signaling operations that set-up the conference.

At step 206, the system redirects the sidebar participants into the temporary conference so that the audio inputs of the sidebar participants are only available to the participants of the temporary conference. At step 208, the system directs the original conference output to the temporary conference as a standalone audio input. This audio input is identified as a talk-only party. In other words, the sidebar participants are allowed to hear the original conference through this input, but any party not in the sidebar cannot hear the sidebar since these other parties are now in a different conference session.

Referring now to Figure 3, another example of the operation of sidebar conferencing is described. This method may use signaling messages that follow the SIP and SDP protocols. However, it will be understood that any number of different

protocols and signaling methods may be used and the system and method described herein is not limited to commands following these protocols.

At step 302, preconditions for the conference are established. For example, a user 1 (at network address UA1) and a user 2 (at network address UA2) may have established a conference. The conference may also have a number of different parameters. For example, the conference URI may be "ConfIDx@conference.com." The conference server SDP may be "SDP_ConfIDx."

At step 304, user 1 invokes the sidebar with user 2. For example, user 1 may invoke a IVR menu during the conference. The IVR server may prompt the user1 for the parties user 1 wishes to conduct a sidebar conference. User 1 may select user 2 by various methods. For instance, user 1 may select user 2 from a list. In another example, voice recognition techniques could be used by user 1 to select user 2. User 2 may also accept the request of the sidebar before the sidebar is initiated.

At step 306, an INVITE message is sent from the IVR server to the conference server. The INVITE message includes a URI of "ConfIDxSB1@conference.com" and a SDP of SDP_ConfIDx with a set equal to "send only." The effect of this message is to tell the conference server to set up a sidebar conference with these parameters and prepare to receive the original conference audio stream as a talk only participant in the new conference.

At step 308, a 200 OK message is sent from the conference server to the IVR server. The 200 OK message includes an SDP of SDP_ConfIDxSB1. The effect of this message is to inform the IVR server that a temporary conference has been set-up with a SDP of SDP_ConfIDxSB1.

At step 310, an acknowledgement message is sent from the IVR server to the conference server. The purpose of the acknowledgement message is for the IVR server to acknowledge receipt of the 200 OK message.

At step 312, a RE-INVITE message is sent from the IVR server to the conference server. The RE-INVITE message includes a call leg of $n + 1$, and an SDP of SDP_ConfIDxSB1 with a equal to "receive only." The effect of this message is to redirect the original conference audio stream into the sidebar conference and to inform the sidebar conference to receive only.

At step 314, a 200 OK message is sent from the conference server to the IVR server. The 200 OK message includes an SDP of SDP_ConfIDxSB1.

At step 316, an acknowledgement message is sent from the IVR server to the conference server. The purpose of the acknowledgement message is for the IVR server to acknowledge receipt of the 200 OK message.

At step 318, an INVITE message is sent from the IVR server to the conference server. The INVITE message includes a URI of "ConfIDxSB1@conference.com" and a SDP of SDP_User1. The effect of this message is to inform the conference server to create a sidebar conference path with user 1.

At step 320, a 200 OK message is sent from the conference server to the IVR server. The 200 OK message includes and SDP of SDP_ConfIDxSB1. The effect of the message is to inform the IVR server that such a path has been created for user 1.

At step 322, an acknowledgement message is sent from the IVR server to the conference server. The purpose of the acknowledgement message is for the IVR server to acknowledge receipt of the 200 OK message.

At step 324, an RE-INVITE message is sent from the IVR server to user 1. The REINVITE message includes a call leg of n, and an SDP of SDP_ConfIDxSB1. The effect of this message is to redirect the user 1 into the sidebar conference from the original conference.

5 At step 326, a 200 OK message is sent from user1 to the IVR server. The 200 OK message includes as SDP of SDP_User1. The effect of this message is to inform the IVR server that user 1 has been redirected to the sidebar conference.

At step 328, an acknowledgement message is sent from the IVR server to user1. The purpose of the acknowledgement message is for the IVR server to
10 acknowledge receipt of the 200 OK message.

At step 330, an INVITE message is sent from the IVR server to the conference server. The INVITE message includes a URI of “ConfIDxSB1@conference.com” and a SDP of SDP_User2. The effect of this message to inform the conference server to create a sidebar conference path with user 2.

15 At step 332, a 200 OK message is sent from the conference server to the IVR server. The 200 OK message includes an SDP of SDP_ConfIDxSB1. The effect of this message is to inform the IVR server that such a path has been created for user 2.

At step 334, an acknowledgement message is sent from the IVR server to the conference server. The purpose of the acknowledgement message is for the IVR
20 server to acknowledge receipt of the 200 OK message.

At step 336, a RE-INVITE message is sent from the IVR server to the user 1. The RE-INVITE message includes a call leg of m, and an SDP of SDP_ConfIDxSB1.

The effect of this message is to redirect the user 2 into the sidebar conference from the original conference.

At step 338, a 200 OK message is sent from the conference server to the IVR server. The 200 OK message includes a SDP of SDP_User2.

5 At step 340, an acknowledgement message is sent from the IVR server to the user 1. The purpose of the acknowledgement message is for the IVR server to acknowledge receipt of the 200 OK message.

Referring now to Figure 4, one example of a process to initiate a sidebar conference is described. At step 402, a first user sends an Initiate Sidebar Request to the IVR server. For example, this request may be in the form of an IVR menu selection. This request may be formed by the first user when the user selects participants it desires to include in the sidebar conference. In this example, the first user requests that the IVR server establish a sidebar with a second user and a third user.

15 At step 404, the IVR server sends a Request-to-Join message to the second user. For example, the message may be in the form of an INVITE message. At step 406, the second user sends an acceptance message to the IVR server. For example, the acceptance message may be in the form of a 200 OK message. The acceptance message indicates that the second user desires to join in the sidebar. Conversely, the second user may send a rejection message to the IVR server at step 406 if the second user does not wish to join the sidebar.

At step 408, the IVR server sends a Request-to-Join message to the third user. For example, the message may be in the form of an INVITE message. At step 410,

the third user sends an acceptance message to the IVR server. For example, the acceptance message may be in the form of a 200 OK message. The acceptance message indicates that the third user desires to join in the sidebar. Conversely, the third user may send a rejection message to the IVR server at step 406 if the third user
5 does not wish to join the sidebar conference.

It should be understood that the programs, processes, methods and systems described herein are not related or limited to any particular type of computer or network system (hardware or software), unless indicated otherwise. Various types of general purpose or specialized computer systems may be used with or perform
10 operations in accordance with the teachings described herein.

In view of the wide variety of embodiments to which the principles of the present invention can be applied, it should be understood that the illustrated embodiments are exemplary only, and should not be taken as limiting the scope of the present invention. For example, the steps of the flow diagrams may be taken in
15 sequences other than those described, and more or fewer elements may be used in the block diagrams. While various elements of the preferred embodiments have been described as being implemented in software, in other embodiments in hardware or firmware implementations may alternatively be used, and vice-versa.

It will be apparent to those of ordinary skill in the art that methods involved in
20 the system and method for conducting a sidebar conference may be embodied in a computer program product that includes a computer usable medium. For example, such a computer usable medium can include a readable memory device, such as, a hard drive device, a CD-ROM, a DVD-ROM, or a computer diskette, having

computer readable program code segments stored thereon. The computer readable medium can also include a communications or transmission medium, such as, a bus or a communications link, either optical, wired, or wireless having program code segments carried thereon as digital or analog data signals.

- 5 The claims should not be read as limited to the described order or elements unless stated to that effect. Therefore, all embodiments that come within the scope and spirit of the following claims and equivalents thereto are claimed as the invention.